Liquid phase synthesis of methylene lactones using novel grafted catalyst

Description of Technology: The invention pertains to a method of producing unsubstituted and substituted alpha-methylene lactones by a liquid phase reaction of starting lactones with formaldehyde in the presence of a novel catalyst that exhibits high conversion and selectivity.

Patent Listing:

1. **US Patent No. 7,205,416**, Issued April 17, 2007, "Liquid phase synthesis of methylene lactones using novel grafted catalyst"
   http://patft.uspto.gov/netacgi/nph-Parser?Sect2=PTO1&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&d=PALL&RefSrch=yes&Query=PN%2F7205416

Market Potential: Alpha-methylene-gamma-butyrolactone and methyl alpha-methylene-gamma-butyrolactone are useful monomers in the preparation of both homopolymers and copolymers. In addition, the alpha-methylene-gamma-butyrolactone group is an important structural feature of many sesquiterpenes of biological importance.

Current ways of making alpha-methylene-gamma-butyrolactone monomer are unattractive because of low yields, byproducts formation and/or expensive starting materials.

It would be advantageous, therefore, to have a lactone conversion process that not only provides high conversion and selectivity, but also allows for easy catalyst recovery.

This need is met by the present invention, which is a process for preparing a reaction product comprising an alpha-methylene lactone of the Formula II, said process comprising reacting a lactone of the Formula I with formaldehyde.

Benefits:

- Produces higher yields, conversion, and selectivity
- Allows for easy catalyst recovery

Applications:

- Production of specific lactones

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